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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/612,572

07/01/2003

Hidekazu Takekoshi

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4253

7590

05/04/2004

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EXAMINER

LEYBOURNE, JAMES J

ART UNIT

PAPER NUMBER

2881

DATE MAILED: 05/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/612,572

Applicant(s)

TAKEKOSHI, HIDEKAZU

Examiner

James J. Leybourne

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)             | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. ____   |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date ____  | 6) <input type="checkbox"/> Other: ____                                     |

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 9-12, 15 and 26-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pencis et al. (US 2003/0012631 A1). In Fig. 3, Pencis et al. disclose a cluster tool comprising a robot in a load chamber for transferring a substrate in a processing system from the load chamber to the vacuum process chamber and from the vacuum process chamber to the load chamber and from a load lock to the load chamber and from the load chamber to the load lock (see Fig.1 and [0006]). The robot can be used with a variety of processing chambers including lithography ([0006] lines 4-7).

Pencis et al. are silent on the moving member and object holding member being substantially non-magnetic, having a relative magnetic permeability of 1.0005 or less. In claim 5, Pencis et al. state the material comprising the end effector and/or the linkage is selected from a group comprising silicon carbide. Since the permeability of silicon carbide is 1.0001, the limitation of claims 1 and 26 are met.

As shown in Fig. 1, the end effector (object holder) is pivotably attached to the arms.

Regarding claims 2, 12, 27 and 28, Pencis et al. do not discuss using the robot to move a reticle. As admitted in the specification (page 1, 2, lines 14-1), it is well known to use robots to move both reticles and wafers. It would be obvious to one of ordinary skill in the art to modify the robot manipulator of Pencils et al. for use with reticles because typically, the entire motion sequence for wafers and reticles is completely automated.

3. Claims 6-8, 13, 14 and 16-25 rejected under 35 U.S.C. 103(a) as being unpatentable over Wang et al. (US 2003/0131458 A1) in view of Pencis et al. as applied to claim 1 above. Wang et al. disclose a cluster tool for semiconductor wafer processing that comprises a first buffer chamber having a first robot and a second buffer chamber having a second robot. At least one load lock is coupled to the first buffer chamber and the second buffer chamber where the first and second robots can access at least one of said load locks. A plurality of process chambers are disposed about the first and second buffer chambers (abstract).

As shown in Fig. 1, the moving members of the first robotic manipulator comprise a first shaft pivotably coupling the object-holding member to the first arm member and a second arm member and a second shaft connecting the first and second arm members together in a manner allowing the first arm member to pivot about the second shaft relative to the second arm member. The fact that Wang et al. fail to disclose a specific property of the material from which the shaft is made, like non-magnetic, indicates that it

is inherent in the description of the shaft that it can be made of any suitable machinable material - this could include non-magnetic materials.

The apparatus of Wang et al. shown in Fig. 1 can be configured to provide the configurations and manipulations of claims 19 -25 using the following correspondences:

First vacuum process chamber	118
Second vacuum process chamber	104
First load chamber	178
Second load chamber	176
First robotic manipulator	134
Second robotic manipulator	132
Third robotic manipulator	146
Forth robotic manipulator	148
First load lock chamber	130
Second load lock chamber	124

with 118, 178, 134, 130 and 146 configured to handle reticles and

with 104, 176, 132, 148 and 124 configured to handle substrates.

It would be obvious to one of ordinary skill in the art to adapt the apparatus of Wang et al. to handle reticles for microlithographic tools requiring changes of reticles because Wang et al. teach that wafer processing throughput is increased by increasing the number of load locks that are accessible to the buffer (load) chambers.

***Relevant Prior Art***

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Kikuchi et al. (US 20040027552 A1 ) disclose robotic reticle manipulators for use in holding and conveying thin, circular reticles as used in charged-particle-beam (e.g., electron-beam) microlithography.

del Puerto et al. (US 20040019408 A1) disclose a reticle handler that includes a robot in a vacuum chamber a load-lock to input reticles and a two or more handed gripper to simultaneously hold multiple reticles.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James J. Leybourne whose telephone number is (571) 272-2478. The examiner can normally be reached on M-F 9:00- 6:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee can be reached on (571) 272-2477. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR.


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Status information for unpublished applications is available through Private PAIR only.  
For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should  
you have questions on access to the Private PAIR system, contact the Electronic  
Business Center (EBC) at 866-217-9197 (toll-free).

April 30, 2004

JJL

  
JOHN R. LEE  
SUPERVISOR/ENGINEER  
TECHNICAL CENTER